Actuarial Report

on the

Manitoba

Municipal Employees

Pension Plan

as at

January 1st, 1986

TURNBULL and TURNBULL

Manitoba

Minister of
Municipal Affairs

Winnipeg, Manitoba, CANADA
R3C 0V8

March 9, 1987

His Honour George Johnson
Lieutenant Governor of Manitoba
225 Legislative Building
Winnipeg, Manitoba
R3C 0V8

May It Please Your Honour:

As Minister responsible I have the privilege of presenting for the information of Your Honour the Third Triennial Actuarial Report of the Manitoba Municipal Employees Pension Plan as at January 1, 1986.

Respectfully submitted,

John M. Bucklaschuk

John M. Bucklaschuk

March 5, 1987

MANITOBA
MUNICIPAL EMPLOYEES BENEFITS BOARD
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Honourable John M. Bucklaschuk
Minister of Municipal Affairs
330 Legislative Building
Winnipeg, Manitoba
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Sir:

I have the honour of presenting to you the Third Triennial Actuarial Report on the Manitoba Municipal Employees' Pension Plan as at January 1, 1986.

This Report was prepared by Turnbull and Turnbull, Consulting Actuaries, and indicates that the Pension Plan is in a sound financial position with a surplus of $2,445,523.

The Actuaries have stated in their Report that this surplus may be used in any way considered desirable. In the past, the Board has used available surpluses to provide improvements in benefits. Again, the Board intends to use the surplus to further improve benefits as soon as the costs of various alternatives can be determined.

Respectfully submitted,

G. D. Forrest
Chairman

COST CERTIFICATE
FOR THE
MANITOBA MUNICIPAL EMPLOYEES
PENSION PLAN
AS AT JANUARY 1ST, 1986

The undersigned hereby certifies that:

1. The fiscal year of the Manitoba Municipal Employees Pension Plan (Plan) is from January 1st to December 31st.

2. The actuarial cost method used to determine the estimated cost of benefits for service in 1986 is the service to date method (unit credit actuarial cost method). A salary projection was used with this method.

   The combined rates of contribution required to be made by the employees and the Participating Municipalities on their behalf in respect of current service are equal to 9.80% on the C.P.P. portion of earnings and 13.00% on the portion of earnings in excess of C.P.P. earnings.

   On the basis of the membership of the Plan as at January 1st, 1986, the estimated cost of benefits for service during 1986 is less than the amounts required to be contributed to the Plan as a result of such service.

   The estimated cost of benefits is equal to $4,359,300 for service in 1986.

3. The rule for computing the estimated cost of benefits for service in subsequent years up to the date of the next cost certificate is the same as in 2 above.

4. There are no initial unfunded liabilities or experience deficiencies under the Plan as at January 1st, 1986.

5. The Plan had a surplus equal to $2,445,523 as at January 1st, 1986.

SIGNED at Winnipeg, this 29th day of October, 1986.

Louis E. Clement
Fellow, Canadian Institute of Actuaries

BASIS:

See Report

October 29th, 1986

Chairman and Members of the
Municipal Employees Benefits Board,
Winnipeg, Manitoba.

1. Introduction

This Report presents the results of the actuarial valuation of the Manitoba Municipal Employees Pension Plan (Plan) as at January 1st, 1986.

The purpose of this valuation is to:

(a) determine the financial position of the Plan as at the valuation date,

(b) determine the adequacy of the contributions being paid by the employees and Participating Municipalities, and

(c) provide recommendations as to the future course of action based on the financial position revealed.

2. Source of Information

The information on which the valuation is based included:

(a) Diskettes which provided information for each employee as at December 31st, 1985. Details of the information provided included: name, social insurance number, sex, date of birth, date of entry into the Plan, employer code salary received in 1985, proportion of 1985 worked while an employee to obtain the salary reported, required employee contributions to the Pension Part of the Plan and interest on these contributions accumulated to the valuation date and employee contributions to the Disability part of the Plan with interest accumulated to the valuation date.

(b) Diskettes which provided information for each pensioner as at December 31st, 1985. The details of the information provided included: name, social insurance number, sex, date of birth, date of retirement, former employer, type of pension and amount of monthly or annual pension. For each pensioner the portion of the pension charged to the Pension, Part of the Plan now and in the future, was also provided. Similar information was provided for each beneficiary or potential beneficiary.

(c) Information for each former employee entitled to a deferred pension as at December 31st, 1985. The details of the information provided included: name, social insurance number, sex, date of birth, date of termination, former employer, pension start date, monthly pension amount, and employee contributions plus interest accumulated to the valuation date.

(d) A list of those employees who transferred under a reciprocal agreement to another public sector employer, either within Manitoba or outside Manitoba.

(e) A list providing the names and social insurance numbers of those "special members" who are not participating in the Pension Part of the Plan.

(f) A list of employees who were making payments in 1983, 1984, and 1985 to convert prior service into contributory service. The details of the information provided included: name, social insurance number, employer, service purchased during the year and payment made to purchase this service, period of service which is still eligible to be purchased and the total years of service which have been purchased to date.

(g) A record of general salary increases granted to employees for 1983, 1984 and 1985.

(h) A list of Municipalites participating in the Plan and their employer codes.

(i) The annual reports and financial statements of the Plan for 1983, 1984, and 1985.

We also had available copies of:

(a) The Actuarial Report on the financial position of the Plan, as at January 1st, 1983 (1983 Report),

(b) the Pension Plan as approved by the Lieutenant Governor in Council on December 22nd, 1976 (O/C 1364/76), and

(c) the Text of the Plan which was adopted by the Board, at the September 26th, 1986 meeting.

The data provided as at December 31st, 1985 was reviewed for missing information and illogical information. The data was also compared to the data provided as at December 31st, 1982.

As a result of these procedures, some of the information received was corrected, missing information was located and some persons were re-classified.

The salaries received for service in 1985 were increased to obtain annual salary rates as at January 1st, 1986. This increase was made by assuming that the increases in salaries during 1985 occurred in accordance with the assumptions made for future increases in salaries.

Some employees were members of the Plan for only part of 1985. For these employees the salary received was increased to reflect the salary that would have been received had the employee been a member of the Plan throughout 1985.

3. Membership of the Plan

The information provided indicated that the membership of the Plan was as follows:

	January 1st, 1986	January 1st, 1983
Employees participating in:		
Both Parts of Plan		
- Males	1,015	821
- Females	274	207
Pension Part of Plan only		
- Males	405	493
- Females	128	164
Disability Part of Plan only		
- Males	34	54
Members receiving pension from Disability Part of Plan		
- Males	30	4
Pensioners		
- Males	152	94
- Females	41	18
- Beneficiaries	22	9
Former employees entitled to deferred pensions		
- Males	16	16
- Females	7	5
Former employees transferred to another public sector employer within Manitoba		
- Males	15	12
- Females	4	2
Former employees transferred to another public sector employer outside Manitoba		
- Males	2	1
	2,145	1,900

The following statistics are applicable to employees who are members of one or more Parts of the Plan:

	January 1st, 1986			January 1st, 1983		
	Males	Females	Total	Males	Females	Total
Number	1,454	402	1,856	1,368	371	1,739
Average Age	42.96	38.61	42.02	42.26	38.03	41.36
Average Years of Service Since Date of Entry Into Plan	6.71	5.25	6.40	5.16	4.09	4.93
Average Salary Rate	$25,700	$19,200	$24,300	$22,000	$16,300	$20,800

4. Operation of the Plan

(a) Amendments to the Plan

A number of amendments have been made since January 1st, 1983. Those amendments which had a significant financial effect are described below.

(i) Pension adjustments were granted effective July 1st, 1984, 1985 and 1986 to offset increases in the cost-of-living after retirement. Full increases were granted to retired employees and beneficiaries whose pension commenced at least 18 months prior to the effective date of the increase in pension. Partial increases were granted if the pension commenced within the 18 months prior to the effective date of the increase in pension.

The full increases were equivalent to 50% of the increase in the Consumer Price Index for Canada for the 12 months ending 6 months prior to the effective date of the increase. One-half of the increase was made equal to x¢ per month times the number of years of contributory service. The other half was made equal to a percentage increase in the pension under the normal form plus any previous increases. The formulas for these increases have been as follows:

Effective July 1st	Cents per Year of Contributory Service	Percentage Increase in Pension
1984	28¢	1.13%
1985	23	.95
1986	25	1.09

The increases in pension effective July 1st, 1984 caused an increase in liabilities of $56,000 as at January 1st, 1983.

A different method was used to finance the increases in pension which became effective on July 1st, 1985 and later. These increases are financed by the Pension Adjustment Account (Account). The purpose of this Account is to finance the pension adjustments granted as a result of increases in the cost of living after the pension commences.

The Account is credited with:

(A) special transfers to the Account from surpluses generated by the Plan, and

(B) interest based on the average rates of return obtained on fixed income investments of the Plan during the period reviewed in the latest Actuarial Report on the financial position of the Plan.

The Account is charged each year with the pension adjustments granted effective July 1st, 1985 and later to persons receiving pensions from the Plan.

The Account was established by the transfer of a portion of the surplus equal to $2,000,000 as at January 1st, 1983. The actual transfer was made effective January 1st, 1985 and as a result interest was credited to this amount at the assumed rate of return of 9.00% per year for 1983 and 1984. The amount of interest included in the transfer was equal to $376,200.

The amounts transferred to the Account in future years will depend on the amounts of surplus generated by the Plan.

(ii) Effective July 1st, 1985, there was a decrease in the reduction used to calculate the pension provided on retirement prior to age 60. As a result the reduction is equal to 1/8 of 1% for each month between the date of retirement and the date of attainment of age 60.

Previously, the reduction was equal to 1/4 of 1% for each month between the date of retirement and the date of attainment of age 60.

This amendment increased the liabilities of the Plan by an amount equal to $382,200 as at January 1st, 1983.

(iii) A number of amendments have been made to comply with changes to the Pension Benefits Act of Manitoba. These amendments became effective on January 1st, 1984 and January 1st, 1985. The amendments which have a significant financial effect are described below.

Protection of Pension Rights

The pension generated for service on or after January 1st, 1985 is fully protected on termination of employment after 5 years of service. This protection is not dependent on a decision by the employee to leave his contributions in the Plan.

The "45 & 10" rule continues to apply to service between July 1st, 1976 and January 1st, 1985.

Previously, the pension generated for service to date was protected on termination of employment after 5 years of service. However, a cash refund could be elected in lieu of the pension if the "45 & 10" rule was not fulfilled.

50% Test

A 50% test is applied when an employee dies, terminates service, or retires, if the employee has completed at least 5 years of service.

This test compares the accumulated value of employee contributions in respect of service after January 1st, 1985 to 50% of the commuted value of the pension or annuity generated as a result of this service. If this accumulated value exceeds 50% of the commuted value of the pension or annuity, the excess is refunded or used to provide additional benefits.

Previously no such test was applicable.

Survivors Benefits Before Retirement

Changes in the death benefit are applicable if an employee dies after completing 5 or more years of service.

This change has been made applicable to all service.

The value of the death benefit is equal to the greater of 2 times the employee's contributions with interest or the commuted value of the pension. The death benefit must be paid in the form of a lifetime pension to the surviving spouse. If there is no surviving spouse or eligible dependents, a cash settlement is paid to the estate.

Previously, a pension was paid for a period of 15 years certain to the beneficiary if death occurred prior to retirement but after the normal retirement date. Otherwise, a cash settlement equal to 2 times the employee's contributions with interest was paid to the beneficiary or estate.

The changes made to comply with the changes to the Pension Benefits Act increased the liabilities of the Plan by $2,864,100 as at January 1st, 1983.

The financial effect on the Plan as at January 1st, 1983 of the amendments adopted is summarized in the following table:

	Reduction in Surplus
Increase in pension effective July 1st, 1984	$ 56,000
Allocation to Pension Adjustment Account	2,000,000
Decrease in reduction applied to pension on retirement prior to age 60	382,200
Changes made to comply with the amendment to the Pension Benefits Act	2,864,100
Total	$ 5,302,300

5. Experience of the Plan

The valuation is based on a set of assumptions as to those factors which will affect the Plan financially in future years. The factors which are of financial significance to the Plan are:

(a) the rate of return earned on the invested assets of the Fund,

(b) the rate at which salaries increase,

(c) the incidence of death after pension commences,

(d) the incidence of death prior to the date the pension commences and the proportion of employees married,

(e) the incidence of termination of service, and the proportion of terminating employees who elect a deferred pension,

(f) the incidence of disability,

(g) the incidence of retirement prior to age 70 for reasons other than total disability,

(h) the rate at which interest is expected to be credited on required employee contributions, and

(i) the expenses of operating the Plan.

Assumptions are developed in respect of each of these factors in order to determine:

(i) the benefits expected to be paid in each future year on the basis of the Plan as it existed at January 1st, 1986, the valuation date, and

(ii) the present value of these benefits for the purposes of establishing the present financial position of the Plan.

Each assumption has been developed from the assumptions used in the 1983 Report.

The assumed rate of return, the expected general increases in salaries, and the rate at which interest is expected to be credited on required contributions are based on experience during the 20-year period prior to the valuation date.

The experience concerning the utilization of benefits has been studied over the 3-year period and 9-year period prior to the valuation date. The experience prior to this time is not as useful

in developing the rates since it does not reflect subsequent changes in the Plan and in the level of economic activity.

The number of deaths, terminations, disablements, and retirements which actually occurred during these periods were compared to the number expected to occur. The numbers expected to occur were calculated by using the rates of utilization assumed in the 1983 Report.

Any differences between the actual experience and the expectations based on the existing assumptions have been analyzed. Where appropriate, the assumptions previously used have been modified to reflect the results of this study of the experience.

(a) Rate of Return on the Assets of the Fund

Rates of return have been calculated for the total Fund. Rates of return have also been calculated for the fixed income and equity portions of the Fund.

The fixed income portion of the Fund includes bonds, mortgages, and calendar year funds being managed by insurance companies and trust companies, short term notes and accrued interest, less the amount of the fixed income investment reserve.

The equity portion of the Fund includes common shares, units of pooled real estate funds and units of pooled equity funds.

The Fund consists of the fixed income portion, the equity portion and cash, plus any amounts receivable less any amounts payable as at December 31st of each year.

The rates of return earned on the Fund each year during the last 6 years are shown in the following table:

Year Ending December 31st	Fixed Income Portion	Equity Portion	Total Fund
1980	9.74%	11.51%	9.65%
1981	10.90	14.03	10.87
1982	11.78	12.13	11.59
Average	10.81%	12.56%	10.70%
1983	12.67%	4.59%	11.69%
1984	11.79	4.67	10.47
1985	12.63	9.10	11.82
Average	12.36%	6.12%	11.33%

The rates of return on the fixed income portion of the Fund are based on the amortized cost of the fixed income investments less the amount of the fixed income investment reserve. Income on the fixed income investments each year is the interest earned plus amounts for amortization of discounts and premiums and realized gains or losses, less the amount credited to the fixed income investment reserve.

The rates of return on the equity portion of the Fund are based on the book value of the equity investments, as shown in the accounts of the Fund. Income on the equity investments each year is dividends, share of earnings, if applicable, plus amounts for unrealized appreciation or depreciation adjustments and amortization of realized gains or losses. The book value of the investment is equal to either the cost or the adjusted cost.

In the 1983 Report, it was assumed that the rate of return would be 9.00% per year. The rates of return earned during 1983, 1984, and 1985 compare favourably with the assumed rate of return.

An actuarial valuation relates to events which are expected to happen in the future. As a result, the rates of return obtained in past years are important only to the extent that they constitute a good indication of the rates of return which can be expected to be earned in the future. The rate of return assumed in an actuarial valuation should represent a reasonable balance between current rates of return and the level of investment earnings expected to be realized in the future.

An indication of the rates of return likely to be available in future years can be obtained from a study of the rates which have been available over a period in the past. It is important that the period studied be long enough to include a variety of economic conditions. This is achieved by using a 20-year period. In this Report, we have used the 20-year period from January 1st, 1966 to December 31st, 1985.

A period as long as 20 years allows the effect of a variety of economic conditions to be reflected in the result obtained. It reduces the fluctuations and distortions which can occur, over shorter periods of time, due to business conditions and government controls.

During this period, the average rate of return on each category of fixed income investment in which new investments have been made for the Fund was as shown in the following table:

Investment Category	20-Year Average Rate of Return	Basis
Federal Bonds	9.59%	Long Term Federal Bonds
Provincial Bonds	10.25	M.Y.W. Provincial Bonds
Corporate Bonds	10.49	M.Y.W. Industrial and Utility Bonds
Municipal Bonds	10.55	M.Y.W. Municipal Bonds
General Bonds	10.45	M.Y.W. 40 Bond Yield Average
N.H.A. Mortgages	10.81	N.H.A. mortgage interest rates less 3/8 of 1% for servicing
Conventional Mortgages	11.14	Conventional mortgage interest rates less 3/8 of 1% for servicing
Calendar Year Funds	10.10	Interest rates allowed on Calendar Year Funds

Similar results have not been provided for equity investments since, unlike fixed income investments, an equity investment is attractive only if there is an increase in the value of the investment during the term of the investment. Over long periods in the past, these increases in value have been sufficient to cause the rate of return obtained on equities to exceed the rate of return obtained on fixed income investments. In the last years there have been significant fluctuations in the value of equity investments. As a result, the dates on which such investments are purchased and sold have an important influence on the results that are obtained.

It has been assumed that, in future, it will be possible to choose these dates with sufficient skill so that the rate of return obtained on equity investments is at least equal to the rate of return which could have been obtained on fixed income investments. As it is possible to allocate all of the Fund to fixed income investments, it is reasonable to assume that existing investments in equities will be retained, and new investments in equities will be made, only if such investments are expected to produce a higher rate of return than can be obtained on fixed income investments. Otherwise, investments in equities would not be justified.

The amounts invested in short-term investments have been excluded from this tabulation. Such investments are used to produce income for the Fund until it is appropriate to make more permanent investments. Use of this procedure helps to increase the rate of return earned by the Fund.

Over the 6-year period prior to the valuation date, the new fixed income investments of the Fund were distributed by category in the following proportions:

	Proportion
Federal Bonds	31.07%
Provincial Bonds	4.54
Corporate Bonds	8.23
Municipal Bonds	1.25
General Bonds	1.28
N.H.A. Mortgages	13.83
Conventional Mortgages	32.74
Calendar Year Funds	7.06
	100.00%

This information can be used to determine the rate of return which is expected to be obtained in future years if it is assumed that:

(i) the distribution of new fixed income investments by category over the 6-year period is a good representation of the investment policy which will be followed in the future,

(ii) the average rates of return obtained in the future on each category of fixed income investment will be at least as high as the average rate of return obtained during the 20-year period prior to the valuation date, and

(iii) any equity investments will produce at least as high a rate of return as fixed income investments.

A rate of return of 10.43% per year is produced by the use of this distribution of new fixed income investments and the 20-year average rate of return obtained on each category of new fixed income investments. This rate is reduced to 10.19% per year if allowance is made for investment management charges of .24 of 1% per year.

It is also desirable to make allowance for the possibility that the rates of return which are available in future will be less than the rates of which were available during the latest 20-year period.

This allowance has been made by excluding from the calculation the very high rates of return that were available during 1981 and the first 6 months of 1982. If this is done, the 20-year average rate of return becomes 9.92% per year before allowance for investment management charges, and 9.68% per year after such allowance is made.

The rate assumed is also affected by the following consideration. The anticipated rate should take into account the effect which a decrease in the rate of inflation will have on rates of return obtained in future. Due to the important financial consequences of any need to decrease the assumed rate, the rate chosen should continue to be satisfactory in periods when average rates of inflation are being experienced.

On the basis of the foregoing considerations, it is reasonable to expect that the Fund will earn a rate of return of at least 9.00% per year, on average, in the future.

The following table summarizes the adjustments made in determining the assumed rate of return:

Calculation based on 20-year averages and 6-year distribution of new fixed income investments	10.43%
Effect of removing 1981 and first 6 months of 1982 from 20-year averages	(.51)
Allowance for investment management charges	(.24)
Allowance for lower rates of inflation	(.68)
Assumed rate of return	9.00%

The assumed rate of return will be the same as the actual rate if there is no change in the distribution of new fixed income investments by category, and no gains or losses are realized on the sale of these investments. The same or better results would be achieved if any losses are more than offset by an increase in investment income.

A proportion of the assumed rate of return is attributable to the expectation that inflation will exist in the future. Inflation causes a decrease in purchasing power. Knowledgeable investors have sought to offset this decrease by charging rates of interest which, on average, make allowance for the expected rate of inflation during the term of the investment. This allowance is added to the real rate of return desired by the investor to produce the rate of interest charged on that investment.

This decrease in purchasing power can be measured by determining the average annual rate of increase in the Consumer Price Index. During the 20 years ending December 31st, 1985, the Consumer Price Index increased by an average of 6.84% per year.

This increase is also affected by the elimination of the increases in the Consumer Price Index during 1981 and the first 6 months of 1982 from the period covered by the average. If that is done, the increase in the Consumer Price Index over the period is 6.41% per year.

If the inflationary component in the assumed rate of return of 9.00% is 6.50%, the real rate of return is expected to be 2.50% per year.

The same rates were used in the 1983 Report.

There are 2 reasons for identifying the 2 parts of the rate of return. These are:

(i) to ensure consistency in the choice of economic assumptions. The assumed rate of return is based on an assumption as to future economic conditions. So also is the assumption made as to the rate at which salaries will increase in future years. Consequently, in order to ensure consistency, the same allowance for inflation, i.e. 6.50% per year, is used in developing both actuarial assumptions, and

(ii) to give a good indication of the rate of return required to be obtained. The assumption of a real rate of return of 2.50% per year implies that new investments obtained for the Fund are expected to yield a rate of return of at least 2.50% per year in excess of the average rate of inflation during the period that these investments are held.

(b) Rates of Salary Increase

Salary increases occur as a result of:

(i) general increases. These increases in salary are granted to all employees and reflect changes in economic conditions, and

(ii) service, merit and promotional increases. These increases in salary are granted on an individual basis to recognize an employee's service and increased value to the employer.

Each class of increase is considered separately in developing the rates at which salaries can be expected to increase in the future.

(i) General Increases in Salary Levels

The 2 components of general increases in salaries are:

(A) the inflationary component. Employees seek increases in salary in order to offset any decreases in purchasing power which are caused by inflation, and

(B) the productivity component or increase in the standard of living component. The productivity component consists of that portion of general increases in salaries which are not offset by inflation. These increases are due to factors such as increases in the real value of goods and services produced per employed person. An increase in productivity is made possible by the greater use of automated or other equipment. Other increases can occur as a result of increases in the qualifications needed to fulfill a position.

The inflationary component of future increases in salaries should be the same as the inflationary component included in the rate of return assumed to be earned on the assets of the Fund in future years. As explained in the previous subsection of this Report, the period used requires the allowance made for inflation in the future to be at the rate of 6.50% per year.

The productivity component is based on a study of increases in the average salaries of employed persons in Canada during the 20-year period prior to December 31st, 1985. The productivity component is obtained by deducting the inflationary component from these increases in salaries. During this period, the productivity component was equal to 1.49% per year.

The rate of increase in the productivity component has decreased steadily in recent years. In the last 6 years, the standard of living has increased by an average of .27% per year.

Past increases in the standard of living were greater than increases in productivity during the same period. It is likely that at least part of this difference will need to be absorbed before normal increases occur. This will cause increases to be lower in the future than they have been over long periods in the past.

On the basis of these considerations, an allowance of 1.00% per year was made for the productivity component of general salary increases. This allowance is the same as the allowance which was made in the 1983 Report.

The expected general future increases in salary are obtained by adding together the increases expected to occur in each component. On that basis, general increases in salary are expected to occur at a rate equal to 7.50% per year in future, on average, this rate consisting of an average expected productivity increase of 1.00% per year plus an allowance for future inflation at the rate of 6.50% per year.

(ii) Service, Merit and Promotional Increases

The following table shows, for each age group of employees, the rates of service, merit and promotional increases which have been adopted for use in this Report. Separate rates for male and female employees have been adopted as the experience of the Plan indicates that a statistically significant difference in salary patterns exists.

Ages	Males	Females
20 - 25	5.1%	3.8%
25 - 30	3.3	2.7
30 - 35	2.6	2.0
35 - 40	2.0	1.5
40 - 45	1.6	1.3
45 - 50	1.5	1.2
50 - 55	.8	.9
55 - 60	.5	.6
60 - 65	.3	.5
65 - 70	.3	.3

The following procedure was used to determine these rates:

The average salary received during the year ended December 31st, 1985 by employees in the same quinquennial age and length of service subdivision was compared with the average salaries of other groups of employees who, on average, are 5 years older with 5 more years of service, are 10 years older with 10 more years of service, are 15 years older with 15 more years of service, and so on. For this purpose, we excluded the salaries of those employees who are receiving more than twice as much or less than half as much salary as the average salary in that age and service group.

A comparison of the actual increases in salary to those expected was made. This comparison indicated that an adjustment should be made to the previously adopted rates of increases in salaries for males and females. The adjustment was made by reducing by 25% the difference between the actual percentage change in salaries and the expected percentage change for these 2 categories of employees.

(c) Incidence of Death After Pension Commences

The study of mortality rates after pension commences differentiated between:

(i) employees who retired in at least average health,

(ii) employees who received a pension due to total disability, and

(iii) survivors of employees who died in service or while in receipt of a pension.

This separation makes it possible to recognize any differences in the rates of mortality which are due to the way in which the pension commenced.

The results of this study are shown in the following table:

		1983 - 1985		1977 - 1985	
		Actual	Expected	Actual	Expected
Males	- Non-disabled	9	9	17	14
	- Disabled	-	1	3	2
Females	- Non-disabled	1	1	2	1
	- Survivors	-	<1	-	<1
		10	11	22	17

The actual number of deaths amongst non-disabled male pensioners was equal to the number expected to occur during the 3-year period and greater than the number expected to occur during the 9-year period prior to the valuation date.

A study of the three 3-year periods indicates that rates of mortality have been decreasing. This trend has also occurred in most other plans. It is expected that there will be some further decrease in the rates of mortality.

In view of these considerations, it was decided to reduce the rates of mortality applicable to non-disabled male pensioners. The reduction was made by adopting a new standard table of rates of mortality applicable to non-disabled male pensioners. On the basis of these new rates of mortality, 12 deaths would have been expected to occur amongst non-disabled male pensioners during the 9-year period prior to the valuation date.

The actual number of deaths amongst non-disabled female pensioners was equal to the number expected to occur during the 3-year period and slightly greater than the number expected to occur during the 9-year period prior to the valuation date. The accumulated experience for non-disabled females is small relative to the accumulated experience for non-disabled males.

There is a natural relationship between the rates of mortality applicable to males and females. The standard tables of mortality developed reflect this relationship.

As a result, the standard table of rates of mortality for females which corresponds to the standard table adopted for non-disabled male pensioners was adopted for non-disabled female pensioners. These new rates of mortality caused a corresponding reduction in the expected number of deaths amongst non-disabled female pensioners during the 9-year period prior to the valuation date.

There is little experience available on disabled male pensioners and practically no experience available on disabled female pensioners. The rates of mortality presently in use for disabled pensioners have been found to be suitable for other plans where a significant amount of experience has been accumulated. As a result, no change was made to the rates of mortality applicable to pensioners who were disabled at the date the pension commenced.

There is no experience available on the rates of mortality amongst survivors who are receiving a pension. Normally, the mortality experience of survivors is similar to the mortality experience amongst pensioners of the same age and sex who were in at least average health at retirement. As a result, the rates of mortality adopted for survivors have been made equal to the rates of mortality adopted for non-disabled pensioners.

(d) Incidence of Death Prior to the Date the Pension Commences and Proportion of Employees Married

(i) Leading to a Cash Settlement or Survivor's Pension.

The results of the study of the incidence of death prior to the date the pension commences are shown in the following table:

	1983 - 1985		1977 - 1985	
	Actual	Expected	Actual	Expected
Males	9	19	39	49
Females	2	2	4	5
	11	21	43	54

The actual number of deaths amongst males was less than the number expected to occur during both the 3-year period and 9-year period prior to the valuation date. These results are consistent with the observed trend of decreasing rates of mortality amongst non-disabled pensioners.

As a result, the rates of mortality applicable to males were reduced. The reduction was made so that it caused a 25% reduction in the difference between the actual number and expected number of deaths during the 9-year period prior to the valuation date.

On the basis of these new rates of mortality, 47 deaths would have been expected to occur during the 9-year period prior to the valuation date.

The actual number of deaths amongst females was equal to the number expected to occur during the 3-year period and less than the number expected to occur during the 9-year period prior to the valuation date. The accumulated experience for females is small relative to the accumulated experience for males. As indicated, a natural relationship exists in the rates of mortality applicable to males and females.

As a result, the rates of mortality applicable to females were also reduced. The reduction was made so that it caused a 25% reduction in the difference between the actual number and expected number of deaths during the 9-year period prior to the valuation date.

These new rates of mortality for females caused a corresponding reduction in the number of expected deaths amongst females during the 9-year period prior to the valuation date.

(ii) Proportion Married.

If an employee dies after the completion of 5 years of service and is survived by a spouse or eligible dependent, the death benefit is paid as a pension. If there is no surviving spouse

or eligible dependent, the death benefit is a cash settlement. The value of the death benefit is the same in both situations.

For the purpose of splitting the liabilities between survivor's pensions and cash settlements, proportions of employees married at each age were adopted. The proportions adopted are based on a study of a large group of employees in the public sector. These proportions have been found to be suitable for several other large groups of employees.

(e) Incidence of Termination of Service

(i) Leading to a Cash Settlement or a Deferred Pension.

Each employee who terminates service prior to retirement is entitled to receive either a cash settlement or a deferred pension, or both.

The results of the study of the incidence of termination from service are shown in the following table:

	1983 - 1985		1977 - 1985	
	Actual	Expected	Actual	Expected
Males	190	138	783	362
Females	105	115	345	288
	295	253	1,128	650

The foregoing tabulations include all employees who terminated service prior to retirement. More meaningful results can be obtained by excluding those employees whose service is not financially significant. A termination is considered to be financially significant if the terminating employee has completed at least 5 years of service or more than one-half of the average period of service which has been completed by employees of the same age.

The results of the study of the incidence of significant terminations from service are shown in the following table:

	1983 - 1985		1977 - 1985	
	Actual	Expected	Actual	Expected
Males	113	107	396	262
Females	79	89	233	215
	192	196	629	477

The actual number of terminations amongst males was greater than the number expected to occur during both the 3-year period and 9-year period prior to the valuation date. The experience amongst males in the three 3-year periods prior to the valuation date indicates a trend of decreasing rates of termination amongst males. As a result, no change was made to the rates of termination amongst males.

The actual number of terminations amongst females was less than the number expected to occur during the 3-year period but greater than the number expected to occur during the 9-year period prior to the valuation date. The experience amongst females in the three 3-year periods prior to the valuation date indicates a trend of decreasing rates of termination amongst females although the rate of decrease is not as great as that for males. As a result, no change was made to the rates of termination amongst females.

(ii) Proportion Electing a Deferred Pension.

A study has been made of the decisions of those employees who were less than age 45 at the date of termination but were eligible to elect a deferred pension.

The results of this study are shown in the following table:

	1983 - 1985		1977 - 1985	
	Actual	Expected	Actual	Expected
Males	6	7	19	11
Females	5	4	9	4
	11	11	28	15

The number of male and female employees who terminated and elected a deferred pension was equal to the number expected to occur during the 3-year period but greater than the number expected to occur during the 9-year period prior to the valuation date.

The experience during the most recent 3-year period indicates the present proportions in use are suitable. As a result, no change was made to the proportions expected to elect a deferred pension.

If an employee has reached age 45 and completed at least 10 years of service at the date of termination, a deferred pension is provided in respect of service after July 1st, 1976. It has been assumed that each such employee who terminates in future will elect a deferred pension in respect to service prior to July 1st, 1976.

(f) Incidence of Becoming Disabled

The results of the study of the incidence of employees becoming disabled are shown in the following table:

	1983 - 1985		1977 - 1985	
	Actual	Expected	Actual	Expected
Males	24	14	34	35
Females	-	5	1	12
	24	19	35	47

The actual number of disablements amongst males was greater than the number expected to occur during the 3-year period but slightly less than the number expected to occur during the 9-year period prior to the valuation date.

The rate of disablement amongst males increased significantly during the 3-year period prior to the valuation date. This was anticipated as a result of the establishment of the Disability Part of the Plan in 1981.

The actual number of disablements is close to the number expected during the 9-year period prior to the valuation date. As a result, no change was made to the rates of disablement amongst males.

The actual number of disablements amongst females was only a small proportion of the number expected to occur in both the 3-year and 9-year period prior to the valuation date.

The rate of disablement amongst females is presently significantly less than the rate of disablement amongst males. This situation is not expected to persist. As a result, no change was made to the rates of disablement amongst females.

(g) Incidence of Retirement for Reasons Other than Disability

The early retirement privilege was improved effective July 1st, 1985. The reduction applied to the amount of pension on retirement prior to age 60 was reduced from 1/4 of 1% to 1/8 of 1% per month for each month between the date of retirement and the date of attainment of age 60.

The results of the study of the incidence of retirement prior to age 70 are shown in the following table:

		198[illegible] - 1985		1977 - 1985	
	Age	Actual	Expected	Actual	Expected
Males	<60	5	2	16	4
	60	2	2	10	3
	61 - 64	12	13	34	26
	65	32	26	69	63
	>65	5	7	21	23
		56	50	150	119
Females	<60	4	1	5	2
	60	1	1	4	2
	61 - 64	11	6	14	10
	65	7	5	12	10
	>65	1	<1	7	6
		24	13	42	30

The actual number of retirements amongst males and females was greater than the number expected in both the 3-year period and 9-year period prior to the valuation date. Similar results were reported in the 1983 Report.

The improvement in the early retirement privilege is expected to cause some increase in the number of retirements prior to age 60.

In view of these considerations, the rates of retirement were increased. The increase was made so that it caused a 25% reduction in the difference between the actual number of retirements and the number expected to occur during the 9-year period prior to the valuation date.

On the basis of these new rates 127 male employees and 33 female employees would have been expected to retire prior to age 70 during the 9-year period prior to the valuation date.

(h) Rate at which Interest is Expected to be Credited on Required Contributions

A cash settlement can be paid to an employee who terminates service in respect of service for which the pension does not have to be protected. The cash settlement is equal to the employee's required contributions, with interest.

The benefit paid in respect of an employee who dies prior to retirement after the completion of 5 years of service has a value which is equal to the greater of 2 times the employee's contributions with interest or the commuted value of the pension. If the employee has not completed 5 years of service, the benefit paid is equal to 2 times the employee's contributions with interest.

It is anticipated that the rate of interest will be based on a 5-year moving average of the rates of interest credited to non-chequing savings accounts operated by the major chartered banks in Canada.

A good indication of the rates of interest likely to be credited in the future can be obtained from a study of the rates of interest which have been allowed on these non-chequing savings accounts during the 20-year period ending December 31st, 1985. During this period, the average rate of interest was 7.17% per year. If the rates of interest credited during 1981 and the first 6 months of 1982 are removed from the average, the average rate of interest is 6.57% per year.

On the basis of the above considerations, it is reasonable to anticipate that, in future, interest will be credited on required contributions at the rate of 6.50% per year.

(i) Cost of Administering the Plan

In the 1983 Report, we indicated that the present value of the expenses expected to be incurred in administering the Plan in 1983, 1984 and 1985 was equal to $363,800.

This is equivalent to expected expenses of $404,300. Actual expenses for these 3 years was equal to $376,900.

The close relationship between actual and expected expenses during the period under review justifies the continued use of the procedure used in the 1983 Report for determining expected future expenses.

The estimated expenses of administering the Plan during 1986, 1987 and 1988 are based on the expenses incurred in 1985. It is assumed that administrative expenses will increase by 10% per year. On this basis, the present value of these expenses is equal to $460,100.

6. Summary of Actuarial Assumptions Used in this Report

(a) Annual Rate of Return on the Assets of the Fund - 9.00% per year.

(b) Annual Rates of Salary Increase (including an allowance of 7.50% per year for future general increases in salary levels):

Ages	Males	Females
20 - 25	13.0%	11.6%
25 - 30	11.0	10.4
30 - 35	10.3	9.6
35 - 40	9.7	9.1
40 - 45	9.3	9.0
45 - 50	9.1	8.8
50 - 55	8.4	8.5
55 - 60	8.0	8.2
60 - 65	7.8	8.1
65 - 70	7.8	7.8

The Yearly Maximum Pensionable Earnings (Y.M.P.E.) caught up to the average earnings of Canadians in 1986. In future, the Y.M.P.E. will increase at the same rate as the average earnings of Canadians as measured by the Average Weekly Earnings Industrial Composite (published by Statistics Canada). We have assumed this index will increase at the same rate as the allowance for general increases in salary - 7.50% per year.

(c) Annual Rates of Death After Pension Commences (for selected ages):

Attained Age	Non-Disabled		Disabled		Survivors	
	Males	Females	Males	Females	Widowers	Widows
20	N/A	N/A	.0882	.0477	.0004	.0002
30	N/A	N/A	.0851	.0454	.0006	.0003
40	N/A	N/A	.0756	.0403	.0012	.0007
50	N/A	N/A	.0674	.0359	.0039	.0016
60	.0092	.0042	.0713	.0380	.0092	.0042
70	.0275	.0124	.0971	.0518	.0275	.0124
80	.0741	.0429	.1749	.0933	.0741	.0429
90	.1663	.1118	.3473	.1852	.1663	.1118
100	.3192	.2952	1.0000	1.0000	.3192	.2952

(d) Annual Rates of Death Prior to the Date the Pension Commences:

(i) leading to a cash settlement or a survivor's pension (for selected ages):

Attained Age	Males	Females
20	.0004	.0003
25	.0005	.0004
30	.0007	.0004
35	.0012	.0006
40	.0020	.0010
45	.0030	.0014
50	.0055	.0021
55	.0088	.0032
60	.0131	.0051
65	.0170	.0080
69	.0204	.0109

(ii) proportion of employees with a spouse (for selected ages):

Attained Age	Males	Females
25	.690	.549
30	.900	.670
35	.927	.711
40	.933	.704
45	.935	.678
50	.935	.658
54	.933	.633

(e) Annual Rates of Termination from Service:

(i) leading to a cash settlement or a deferred pension (for selected ages):

Attained Age	Males	Females
20	.109	.226
25	.081	.203
30	.057	.143
35	.042	.083
40	.028	.047
45	.020	.036
50	.011	.024
54	.007	.014

(ii) proportion of eligible terminations expected to elect a deferred pension where such a pension may be elected (for selected ages):

Attained Age	Males	Females
25	.103	.080
30	.178	.165
35	.252	.252
40	.329	.338
45	.404	.426
50	.479	.510
54	.541	.576

It is expected that all employees terminating service at ages 45 and older, who have completed 10 or more years of service, will become entitled to a deferred pension in respect to all service.

(f) Annual Rates of Becoming Disabled (for selected ages):

Attained Age	Males	Females
35	.001	.002
40	.002	.003
45	.002	.003
50	.003	.005
55	.007	.011
60	.011	.021
64	.027	.049

(g) Annual Rates of Retirement (for selected ages):

Attained Age	Males	Females
56	.008	.025
58	.014	.028
60	.041	.074
62	.067	.124
64	.119	.161
66	.370	.233
68	.175	.500
70	1.000	1.000

(h) Annual Rate of Interest Expected to be Credited to Required Contributions - 6.50% per year.

(i) Provision for Expenses during the next 3 years $460,100.

7. Valuation Results - Present Members of the Plan

Both the service to date method of valuation and the total service method of valuation have been used in this Report.

The service to date method of valuation has been used to provide the information requested by the regulating authorities.

The total service method of valuation has been used to provide information on the status of the Plan using the agreed upon method of financing.

The objective of this method is to accumulate the funds to a level which will be sufficient to finance the accrued benefits at the valuation date without further contributions.

The financial position of the Plan is indicated by the relationship between:

(a) the present value of the liabilities which the Plan has in respect to the benefits promised, and

(b) the present value of the funds available to finance these liabilities as they fall due.

The actuarial valuation is the process whereby this relationship is quantified:

(a) The present value of the liabilities of the Plan in respect of employees is determined separately for each benefit the Plan provides.

For each benefit, each employee, and each future year of participation, we determine:

(i) the probability of a benefit becoming payable at each future age based on the actuarial assumptions outlined in the previous section of this Report,

(ii) a discount factor which makes allowance for the portion of the benefit which is expected to be financed by future investment earnings, and

(iii) the amount of the expected benefit. The amount of the benefit expected to be paid is based on service completed prior to the valuation date or service completed prior to the date of the event causing the benefit to be paid, whichever is applicable. The amount of the salary-related benefits is based on the projected salaries immediately prior to the event causing the benefit to be paid.

The present value of the liabilities for each benefit for each employee is the sum of the product of these 3 components over all possible future years of participation for that employee. The present value of the liabilities for each benefit is the sum of the present values obtained for all employees.

The present value of the liabilities of the Plan in respect of pensioners and former employees entitled to a deferred pension is determined by a similar process.

(b) The Fund is the principal source of the amounts available to finance these liabilities.

Two Balance Sheets on the financial position of the Plan have been prepared. These Balance Sheets are based on the following comparisons:

(a) Service to Date -

The value of the existing Fund compared to the value of the liabilities in respect of service completed up to January 1st, 1986.

(b) Total Service -

The value of the existing Fund plus the present value of future contributions expected to be made by the employees and Participating Municipalities compared to the liabilities in respect of service completed up to January 1st, 1986 and the liabilities in respect of service expected to be completed after January 1st, 1986.

The Plan consists of 2 main parts. These parts are the Pension Part of the Plan and the Disability Part of the Plan. The Disability Part of the Plan is responsible for any portion of each disability pension which is in excess of the accrued pension at the date of disability. This Part of the Plan is also responsible for certain cash settlements. If the service of an employee terminates and a cash settlement is paid under the Pension Part of the Plan, a cash settlement is also paid under the Disability Part of the Plan. If an employee dies prior to retirement and a cash settlement is paid under the Pension Part of the Plan, a cash settlement is also paid under the Disability Part of the Plan.

The effect on the financial position of the Plan with respect to the benefits expected to be accrued for service after the valuation date is considered separately in a following Section of this Report.

The financial position of the Plan with respect to the present members is shown in the following Valuation Balance Sheets:

Manitoba Municipal Employees'
Pension Plan
Valuation Balance Sheet
as at January 1st, 1986

		Service to Date
ASSETS		
Invested Assets:		
Fixed Income (amortized cost - Note 1)	$29,489,404	
Equity (adjusted cost - Note 1)	7,934,874	
Less: Investment reserve	330,469	
Pension Adjustment Account	2,628,864	$34,464,945
Cash in bank	241,802	
Accrued interest on investments	274,903	
Contributions receivable	338,677	855,382
Value of future payments by employees purchasing credit for prior service		58,300
TOTAL ASSETS		$35,378,627
LIABILITIES		
Value of liabilities in respect of current benefits		
- retirement pensions	$ 4,702,700	
- disability pensions (Note 2)	605,800	
- survivors' pensions	218,000	$ 5,526,500
Value of liabilities in respect of future benefits earned for service to December 31st, 1985		
(a) present employees		
- retirement pensions	$16,888,800	
- disability pensions	1,928,400	
- survivors' pensions	2,708,900	
- deferred pensions	2,601,700	
- cash settlements on death	356,600	
- cash settlements on termination	744,400	
- refunds due to 50% test	330,400	
(b) former employees		
- deferred pensions	234,100	25,793,300
Value of funds to be transferred under reciprocal agreements		67,000
Value of paid-up pensions to be paid under reciprocal agreements		339,700
Value of pensions under Disability Part of Plan (Note 3)		
- current disabled employees		830,400
Accounts payable (Note 4)		376,204
TOTAL LIABILITIES		$32,933,104
SURPLUS		$ 2,445,523

Manitoba Municipal Employees'
Pension Plan
Valuation Balance Sheet
as at January 1st, 1986

ASSETS

		Total Service
Invested Assets:		
Fixed Income (amortized cost - Note 1)	$29,489,404	
Equity (adjusted cost - Note 1)	7,934,874	
Less: Investment reserve	330,469	
Pension Adjustment Account	2,628,864	$ 34,464,945
Cash in bank	241,802	
Accrued interest on investments	274,903	
Contributions receivable	338,677	855,382
Value of future payments by employees purchasing credit for prior service		58,300
Value of future contributions expected to be received		
- present employees	32,535,000	
- Participating Municipalities	32,362,800	64,897,800
TOTAL ASSETS		$100,276,427

LIABILITIES

Value of liabilities in respect of current benefits		
- retirement pensions	$ 4,702,700	
- disability pensions (Note 2)	605,800	
- survivors' pensions	218,000	$ 5,526,500
Value of liabilities in respect of future benefits earned for service to December 31st, 1985		
(a) present employees		
- retirement pensions	$16,888,800	
- disability pensions	1,928,400	
- survivors' pensions	2,708,900	
- deferred pensions	2,601,700	
- lump-sum payments on death	356,600	
- lump-sum payments on termination	744,400	
- refunds due to 50% test	330,400	
(b) former employees		
- deferred pensions	234,100	25,793,300
Value of liabilities in respect of future benefits expected to be earned by present employees for service on and after January 1st, 1986		
- retirement pensions	$42,761,700	
- disability pensions	3,963,000	
- survivors' pensions	5,437,000	
- deferred pensions	3,942,200	
- cash settlements on death	760,500	
- cash settlements on termination	15,500	
- refunds due to 50% test	1,914,000	58,793,900
Value of funds to be transferred under reciprocal agreements		67,000
Value of paid-up pensions to be paid under reciprocal agreements		339,700
Value of future payments under reciprocal agreements		76,000
Value of disability pensions under Disability Part of Plan (Note 3)		
- current disabled employees	$ 830,400	
- future disabled employees	2,880,000	3,710,400
Accounts payable (Note 4)		376,204
Provision for future expenses		460,100
TOTAL LIABILITIES		$95,143,104
SURPLUS		$ 5,133,323

Notes

1. Fixed income investments:

   Premiums and discounts greater than 1% of par value are amortized over the remaining term to maturity. In addition, gains and losses on disposition prior to maturity are amortized over the remaining term to maturity to a maximum of 20 years.

   Equity investments:

   Equity investments are adjusted annually to recognize 1/5 of unrealized appreciation or depreciation. In addition, gains or losses on disposition are amortized over 5 years.

2. The value of disability pensions is for the portion of the disability pension which is payable as a result of service completed up to the date of disability.

3. The value of disability pensions under the Disability Part of the Plan:

   The value of disability pensions under the Disability Part of the Plan is for the portion of each disability pension which is charged to this Part of the Plan. The proportion is obtained by dividing potential service by the total of service to the date of disability plus potential service. Potential service is service between the date of disability and age 65.

   The liabilities for future cash settlements on termination from service and death prior to retirement are included in the respective liabilities shown above.

4. Accounts payable:

   This item consists of:

- Cheques outstanding	$275,874
- Accounts payable	22,330
- Liabilities for cash settlements and other benefits in process	78,000
Total	$376,204

8. Analysis of Valuation Results

The results have been analyzed for the Valuation Balance Sheet prepared by using the service to date method.

This Valuation Balance Sheet discloses a surplus of $2,445,523 as at January 1st, 1986. In our 1983 Report, a surplus of $8,232,240 was disclosed.

In the 1983 Report, the Valuation Balance Sheet was prepared by using only the total service method.

The financial position of the Plan as at January 1st, 1986 can be reproduced if the surplus as at January 1st, 1983 is adjusted to recognize the various changes in the financial position which occurred during the valuation period. This procedure is demonstrated in the following schedule:

Surplus as at January 1st, 1983	$8,232,240
Cost of amendments	(5,302,300)
Interest at 9.00% on balance remaining	864,400
Expected surplus as at January 1st, 1986 before allowance for actual experience during the period under review, changes in expected future experience and actuarial cost method	$3,794,340
Effect of actual experience during period under review	3,638,483
Surplus as at January 1st, 1986 before allowance is made for changes in expected future experience and actuarial cost method	$7,432,823
Effect of changes in expected future experience	(2,299,500)
Effect of change in valuation method	(2,687,800)
Surplus as at January 1st, 1986	$2,445,523

The following factors influenced the actual experience during the period under review and improved the financial results:

(a) The greater than assumed rate of return on investments made for the Plan. The improvement in financial position due to this source is equal to $1,945,200.

(b) The smaller than expected increases in salaries. The improvement in financial position due to this source is equal to $404,100.

(c) The smaller than expected number of deaths amongst males prior to retirement.

(d) The greater than expected number of terminations amongst males from service.

(e) The smaller than expected number of disablements amongst females.

The greater than expected number of retirements prior to age 70 had an adverse effect on the financial results.

There were no changes made to the actuarial assumptions that improved the financial results.

The following changes made to the actuarial assumptions had an adverse effect on the financial results:

(a) The decrease in the rates of mortality applicable to non-disabled pensioners.

(b) The decrease in the rates of mortality applicable prior to commencement of pension.

(c) The increase in the rates of retirement prior to age 70.

The net adverse effect on the financial position due to the changes made to the actuarial assumptions was equal to $2,299,500.

9. Contribution Rate

As indicated earlier, 2 methods of valuation have been used in this Report.

Under the service to date method, the current service cost is the amount needed to finance the benefits accruing under the Plan in respect of service during the year. This amount is expressed as the percentage of salary received in that year. These rates are commonly called the theoretical contribution rates.

The adequacy of the contribution rates is determined by comparing:

(a) the required contribution rates, and

(b) the theoretical contribution rates.

The required contribution rates are as follows:

	Percentage of Earnings		
Pension Part of Plan	Employees	Participating Municipality	Total
≤Y.M.P.E.*	4.40%	4.40%	8.80%
>Y.M.P.E.*	6.00	6.00	12.00
Disability Part of Plan			
Municipality and employee both contribute**	.50%	.50%	1.00%
Municipality only contributes	-	1.00	1.00
Employee only contributes	1.00	-	1.00

*The Y.M.P.E. is the yearly Maximum Pensionable Earnings under the Canada Pension Plan.

**Four of the Participating Municipalities which share in the cost of the disability benefits pay less than 50% of the total rate of contribution.

The theoretical contribution rates are based on:

(a) the benefits and eligibility requirements which existed as at January 1st, 1986,

(b) the distribution of the employees by age, sex, service, and earnings as at January 1st, 1986,

(c) the actuarial assumptions adopted for this Report, and

(d) an allowance for expenses based on the average annual expenses incurred in the 3-year period prior to the valuation date.

The rates of contribution required to be made by the employees and the Participating Municipalities on their behalf in respect of current service has been compared to the theoretical rates. This comparison is shown in the following table:

	Required Rates	Theoretical Rates	Margin
- on C.P.P. portion of earnings	9.80%	8.97%	.83%
- on portion of earnings in excess of C.P.P. earnings	13.00	11.90	1.10

The above table indicates there is a margin in the present rates of contribution. The presence of this margin provides protection against possible future increases in the cost of benefits promised under the Plan.

The cost of benefits is affected by the distribution of the participating employees by age, sex, service, and earnings. If the average age of the participating employees increases, the cost of benefits can be expected to increase.

If the distribution of participating employees remains relatively unchanged, the cost of benefits can be expected to remain unchanged as a percentage of earnings. If the cost of benefits does not increase, the margin will help to generate future surpluses.

There is also a margin if the rates of contribution are determined in accordance with the total service method of valuation. This margin is equal to .44% on C.P.P. portion of earnings and .57% on portion of earnings in excess of C.P.P. earnings.

10. Comments and Recommendations

During the last 3 years, the financial position of the Plan has been affected by changes in actual and expected experience. These changes are automatically reflected in the financial results obtained.

The assets of the Plan are sufficient to pay the benefits promised under the Plan in respect of service completed up to January 1st, 1986, as these benefits become due.

The surplus may be used in any way considered desirable.

11. Certification

We hereby certify that, in our opinion, the assets of the Plan are sufficient to provide the benefits promised by the Plan in respect of service completed up to January 1st, 1986 as these benefits fall due.

We also certify that, in our opinion, the assets of the Plan, together with the contributions expected to be received from and on behalf of the members of the Plan are sufficient to provide the benefits promised by the Plan as they become due.

We will be pleased to discuss this Report with you at your convenience.

DATED at Winnipeg, this 29th day of October, 1986.

Respectfully submitted,

Louis Clément

Actuary

John A. Turnbull

Actuary